

TO-220AC Ultra-Fast Recovery Rectifier Diodes

Features

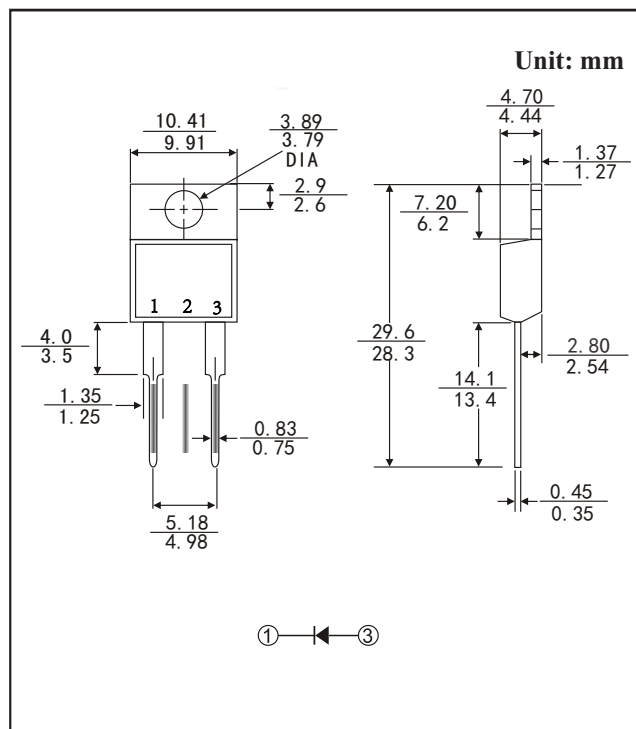
- Adopt FRED chip
- Low forward Voltage drop
- Fast reverse recovery time
- High frequency operation
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Guard ring for enhanced ruggedness and long term reliability

Typical Applications

Typical applications are in switching power supplies, converters, freewheeling diodes, and reverse battery protection.

Mechanical Data

- **Package:** TO-220AC
Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102



MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

PARAMETER	SYMBOL	UNIT	MUR2040
Device marking code			MUR2040
Repetitive Peak Reverse Voltage	V_{RRM}	V	400
Average Rectified Output Current @60Hz sine wave, R-load, T_C (FIG.1)	I_O	A	20
Surge(Non-repetitive)Forward Current @60Hz half sine-wave, 1 cycle, $T_J=25^\circ\text{C}$	I_{FSM}	A	120
Current Squared Time @1ms≤t≤8.3ms $T_J=25^\circ\text{C}$,	I^2t	A ² s	60
Storage Temperature	T_{stg}	°C	-55 ~ +175
Junction Temperature	T_J	°C	-55 ~ +175
Typical Junction capacitance @4V,1MHz	C_j	pF	50
Mounting torque @recommend torque: 5kg·cm	Tor	kg·cm	8

■Electrical Characteristics

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	Min	Typ	Max
Instantaneous forward voltage drop per diode	V_{FM}	V	$I_{FM}=10.0A$ @ $T_J=25^{\circ}C$	-	-	1.30
			$I_{FM}=10.0A$ @ $T_J=150^{\circ}C$		0.9	1.0
DC reverse current at rated DC blocking voltage per diode	I_{RRM1}	μA	$V_{RM}=V_{RRM}$ $T_J=25^{\circ}C$	-	-	5
	I_{RRM2}		$V_{RM}=V_{RRM}$ $T_J=150^{\circ}C$	-	40	100
Reverse Recovery Time	T_{rr}	ns	$I_F=0.5A$ $I_{RM}=1A$ $I_{RR}=0.25A$ $T_J=25^{\circ}C$	-	25	35
			$T_J=25^{\circ}C$	-	33.5	-
			$T_J=125^{\circ}C$	-	54.8	-
Peak recovery current	I_{RRM}	A	$T_J=25^{\circ}C$	-	4.1	-
			$T_J=125^{\circ}C$	-	8.1	-
Reverse recovery charge	Q_{rr}	nC	$T_J=25^{\circ}C$	-	68.3	-
			$T_J=125^{\circ}C$	-	226.7	-

■Thermal Characteristics ($T_J=25^{\circ}C$ Unless otherwise specified)

PARAMETER		SYMBOL	UNIT	MUR2040FCT
Thermal Resistance	Between junction and case	$R_{\theta J-C}$	$^{\circ}C/W$	5.0
Thermal Resistance	Between junction and Air	$R_{\theta J-A}$	$^{\circ}C/W$	50

RATINGS AND CHARACTERISTIC CURVES

FIG1: I_o - T_c Curve

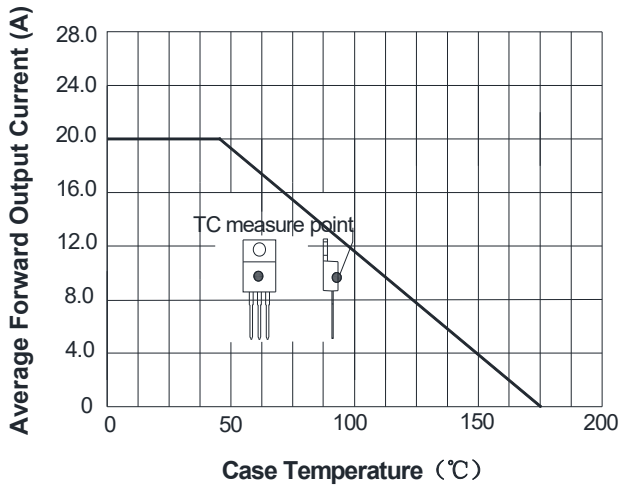


FIG2: Surge Forward Current Capability

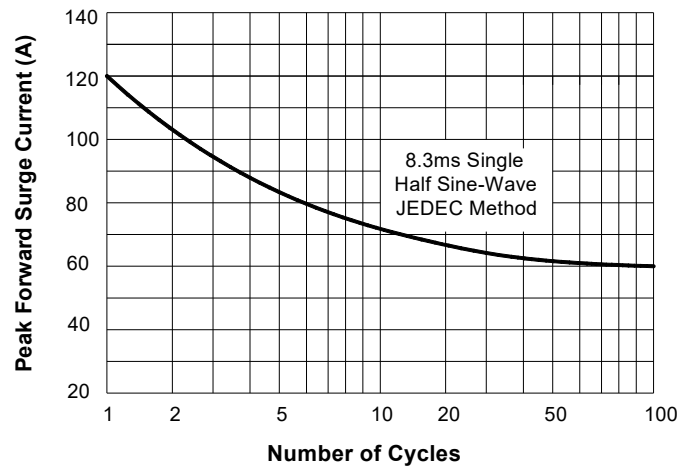


FIG3: Forward Voltage

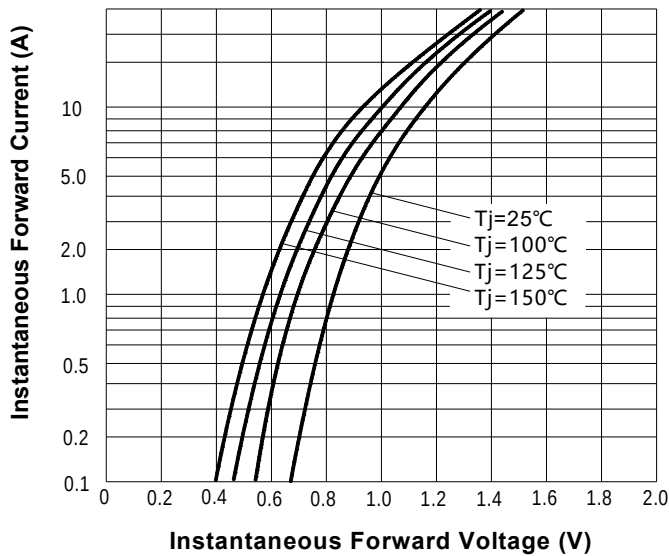


FIG4: Instantaneous Reverse Characteristics

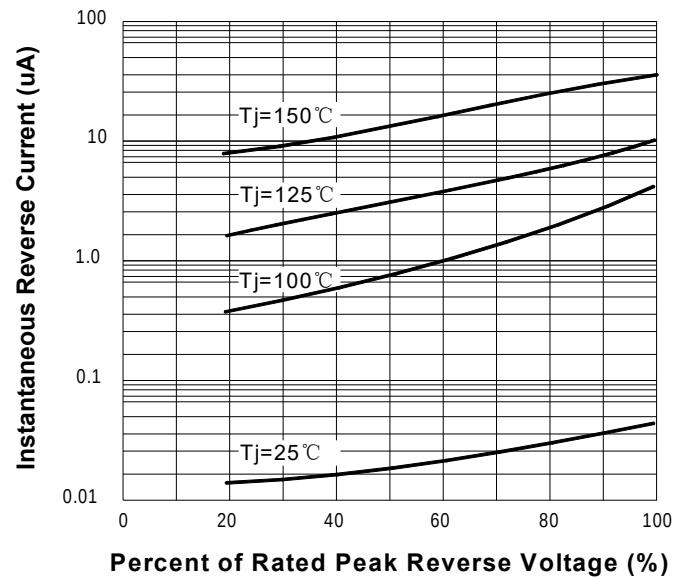


FIG5: Diagram of circuit and Testing wave form of reverse recovery time

